Amendments to the Specification

Please amend the paragraph beginning at page 1, line 20, as follows.

--Image forming apparatuses employing an electrophotographic process are known which forms a synthetic color image by decomposing a color image information or a multicolor information into its color components, forming a latent image corresponding to the respective color components on a photosensitive member, forming a toner image on the latent image, transferring the toner image of this color component temporarily on an intermediate image-transfer ~~member~~ element, and further transferring onto this toner image another color component toner image in superposition. The image forming apparatus employing such an intermediate ~~image transfer member~~ image-transfer element is useful as a color image forming apparatus, a multiple color image forming apparatus, or an image forming apparatus equipped with a color image forming mechanism or a multiple color image forming mechanism since the apparatus gives color images with sufficient superposition (registration) of component color images. Color copying machines and color printers equipped with such an image forming apparatus have come to be marketed.--

C1

Please amend the paragraph beginning at page 2, line 26, as follows.

--The image forming apparatuses employing an intermediate image-transfer ~~member~~ element or an image-transferring belt are disclosed in Japanese Patent Application Laid-Open Nos. 8-320591, 8-211757, 8-160759, 2001-51524, and so forth.--

C2

Please amend the paragraph beginning at page 5, line 8, as follows.

--The intermediate image-transfer ~~member~~ element or the image-transferring belt is brought into contract with the photosensitive member with a nip contact breadth of several millimeters at a contact pressure ranging from 5 to 1000 g/cm^2 (0.49 to 98.1 kPa). The intermediate image-transfer ~~member~~ element or the image-transferring belt is repeatedly attached to and detached from the copying paper sheet, which may cause fine vibration (chattering vibration). When the vibration is strong, the transferred toner image can be blurred or not to be registered to impair the image quality directly. Even when the vibration is not so strong, the energy generated by the vibration may cause toner melt adhesion, filming, adhesion of talc or paper dust onto the intermediate image-transfer ~~member~~ element or the image-transferring belt to cause an image defect in a stripe state or a dot state, or to cause blurring of the image by high-temperature and high-humidity conditions (30° C, 80% RH or higher) on the photosensitive member surface disadvantageously. The toner melt adhesion or foreign matter deposition tends to occur especially at the contact position (nip) of the photosensitive member with the intermediate image-transfer ~~member~~ element or the image-transferring belt.--

C3

Please amend the paragraph beginning at page 6, line 5, as follows.

--Hitherto, such problems have been dealt with by changing the material of or the shape of the intermediate image-transfer ~~member~~ element of the image-transferring belt, contact conditions, and stretching conditions thereof. However, a-Si has not been studied as the factor for preventing the fine vibration, toner melt adhesion, and foreign matter deposition, so that the problem has not been solved satisfactorily.--

C4

Please amend the paragraph beginning at page 6, line 14, as follows.

--In the recent years, electrophotographic image forming apparatuses having a printer function in addition to the copying function have come to be widely used. For such apparatuses, accessories such as a feeder mechanism and a sorter mechanism are developed. With such development, continuous image formation on 4000 sheets or more of recording sheets can be practicable in one job. In such recording operation, for example, at an image formation rate of 50 sheets (A4-size, 210mm x 297mm) per minute, the 4000 sheet (A4-size) of image formation will be continued for 80 minutes or longer by simple calculation. Such a long time of continuous operation will elevate the ambient temperature up to about 50° C around the photosensitive member, and can elevate the temperature at the contact portion between the photosensitive member and the intermediate image-transfer ~~member~~ element or between the photosensitive member and the image-transferring belt to be higher than that. In addition to the occurrence of the aforementioned fine vibration, the higher temperature at the contact portion can aggravate further the toner melt adhesion.--

C5

Please amend the paragraph beginning at page 7, line 8, as follows.

--The a-Si photosensitive material has a semipermanent life. It is confirmed that the photosensitive member employed in a copying machine has a durability for image formation of three million to five million sheets. Therefore, for the purpose of material-saving, and running cost reduction, the intermediate image-transfer ~~member~~ element or the image-transferring belt as the peripheral ancillary member employed with the a-Si photosensitive material should also have a sufficiently long life. However, the fatigue or deterioration of the intermediate image-transfer ~~member~~ element or the image-transferring

C6

belt which is resulting from the fine vibration caused by repetition of contact with or separation from the a-Si photosensitive member is not sufficiently elucidated. Therefore, dramatic elongation of the life of the intermediate image-transfer ~~member~~ element or the image-transferring belt has not been achieved.

C6 cont.

Please amend the paragraph beginning at page 8, line 10, as follows.

Another object of the present invention is to provide an image forming process in which the deterioration of the intermediate image-transfer ~~member~~ element or the image-transferring belt is retarded to lengthen the life thereof.

C7

Please amend the paragraph beginning at page 8, line 15, as follows.

Still another object of the present invention is to provide an image forming process which prevents image transfer deviation which is caused by repeated contact with, or separation from the a-Si photosensitive member, of the intermediate image-transfer ~~member~~ element or the image-transferring belt; and prevents image blurring which is caused by toner melt adhesion or foreign matter deposition like paper dust deposition onto the photosensitive member surface.

C8

Please amend the paragraph beginning at page 8, line 24, as follows.

A further object of the present invention is to provide an image forming process which enables high-speed driving of the intermediate image-transfer ~~member~~ element or the image-transferring belt and lengthens the life thereof; and which achieves readily a

C9

C9 cont.

higher freedom degree for selection of the construction material and the constitution of the intermediate image-transfer ~~member~~ element or the image-transferring belt.

Please amend the paragraph beginning at page 9, line 10, as follows.

--According to an aspect of the present invention, there is provided an image forming process for an electrophotographic system employing an image forming apparatus equipped with a photosensitive member having a photoconductive layer composed of a silicon-based non-monocrystalline material and a surface layer composed of a non-monocrystalline material formed successively on a peripheral face of a cylindrical electroconductive substrate, and a cylindrical intermediate image-transfer ~~member~~ element in contact with the photosensitive member at the surface thereof, and rotating the photosensitive member and the intermediate image-transfer ~~member~~ element at a prescribed relative speed; the process comprising an electrifying step of electrifying a surface of the photosensitive member, a latent image-forming step of forming an

C10

electrostatic latent image by protection of light onto the surface electrified in the electrifying step, a developing step for forming a toner image by deposition of a toner on the surface carrying the electrostatic latent image formed by the latent image-forming step, and an image transferring step for transferring the toner image formed in the developing step onto the intermediate ~~image transfer member~~ image-transfer element; and repeating the electrifying step, the latent image-forming step, the developing step, and the transferring step plural times to form plural toner images in superposition on the intermediate ~~image transfer member~~ image-transfer element, and transferring the toner

images formed in superposition on the intermediate image-transfer ~~member~~ element onto a recording sheet:

wherein the photosensitive member and the intermediate image-transfer ~~member~~ element are brought into contact at a contact temperature ranging from 15° C to 60° C at an intended relative speed of the photosensitive member to the intermediate image-transfer ~~member~~ element to give a kinetic frictional deviation (a standard deviation of kinetic frictional force) less than the average value of the kinetic frictional force.

C10 cont.

Please amend the paragraph beginning at page 12, line 8, as follows.

The image forming process of the present invention prevents fine vibration of the photosensitive drum 1 and the intermediate image-transfer ~~medium~~ element 20, which can be caused by repeated contact and separation of the photosensitive member and the intermediate image-transfer ~~medium~~ element. Thereby, deviation in image transfer caused by the fine vibration can be prevented. Further, toner melt adhesion and foreign matter deposition onto the photosensitive member surface is prevented, whereby image blurring is prevented. Further, deterioration of the intermediate image-transfer ~~medium~~ element caused by the fine vibration is prevented. The temperature of the contact portion, and the kinetic frictional deviation ~~factor~~ coefficient can be controlled within the aforementioned ranges, for example by selecting the material of the photosensitive member or the intermediate image-transfer ~~member~~ element.

C11

Please amend the paragraph beginning at page 12, line 25, as follows.

--Further, the fine vibration can effectively be suppressed by controlling the kinetic frictional deviation ~~factor~~ coefficient to be not higher than 0.1, where the kinetic frictional deviation ~~factor~~ coefficient is a rate of change of the ratio of the kinetic frictional deviation per unit length in length direction of the contact face to the contacting linear pressure, and the contacting linear pressure is defined as the force applied to contact the photosensitive member with the intermediate image-transfer ~~member~~ element per unit length in the length direction of the contact face.--

C12

Please amend the paragraph beginning at page 13, line 9, as follows.

--The fine vibration can also effectively be suppressed by controlling the range of variation of the kinetic frictional deviation ~~factor~~ coefficient to be not more than 0.02 for change of the contact temperature of the photosensitive member with the intermediate image-transfer ~~member~~ element from 15° C to 60° C, so that the kinetic frictional deviation ~~factor~~ coefficient may not become larger regardless of temperature variation at the contact portion.--

C13

Please amend the paragraph beginning at page 13, line 18, as follows.

--The fine vibration can also effectively be suppressed by providing a surface layer composed of a non-monocrystalline material based on silicon and/or carbon, and controlling the range of variation of the kinetic frictional deviation ~~factor~~ coefficient to be not more than 0.01 for change of the contact temperature of the photosensitive member with the intermediate image-transfer ~~member~~ element from 15° C to 60° C.--

C14

Please amend the paragraph beginning at page 15, line 3, as follows.

--The present invention is also applicable, by employing the aforementioned contact conditions of the photosensitive member with the intermediate image-transfer ~~member~~ element to the contact conditions of the photosensitive member and the image-transferring belt, to the image forming process for an electrophotographic system employing an image forming apparatus equipped with plural photosensitive members having respectively a photoconductive layer composed of a silicon-based non-monocrystalline material and a surface layer composed of a non-monocrystalline material formed successively on a peripheral face of a cylindrical electroconductive substrate, and an image-transferring belt for holding and delivering a recording sheet with successive contact with the surfaces of the plural photosensitive members, and moving the photosensitive member and the recording sheet prescribed relative speed; the process comprising an electrifying step of electrifying a surface of one of the photosensitive members, a latent image-forming step of forming an electrostatic latent image by projection of light onto the surface electrified in the electrifying step, a developing step for forming a toner image by deposition of a toner on the surface carrying the electrostatic latent image formed by the latent image-forming step, and an image transferring step for transferring the toner image formed in the developing step onto the recording sheet; and repeating the electrifying step, the latent image-forming step, the developing step, and the transferring step for the respective plural photosensitive members to form plural toner images in superposition on the recording sheet.--

C15

Please amend the paragraph beginning at page 17, line 1, as follows.

--The image forming apparatus of the present invention comprises a photosensitive member having a photoconductive layer composed of a silicone-based non-monocrystalline material and a surface layer composed of a non-monocrystalline material formed on a peripheral surface of a cylindrical electroconductive substrate, an electrifier for electrifying the surface of the photosensitive member, and imaging light projecting means for projecting imaging light onto the electrified surface to form a latent image thereon, a developing means for applying a toner onto the surface having the electrostatic latent image to form a toner image, and an intermediate image-transfer ~~member~~ element in a cylinder shape placed to be in contact with the photosensitive member at the surfaces, wherein the image forming apparatus conducts image formation according to the image forming process as set forth above.--

C16

Please amend the paragraph beginning at page 18, line 13, as follows.

--Fig. 1 shows schematically a constitution of an example of a color image forming apparatus having an intermediate image-transfer ~~member~~ element for an electrophotographic process.--

C17

Please amend the paragraph beginning at page 19, line 2, as follows.

--Fig. 6 is a schematic view of a friction testing apparatus for evaluating friction between the photosensitive member and the intermediate image-transfer ~~member~~ element.--

C18

Please amend the paragraph beginning at page 19, line 19, as follows.

--Fig. 11 is a schematic drawing for explaining an example of the image forming apparatus having a belt-shaped intermediate image-transfer ~~member~~ element.--

C19

Please amend the paragraph beginning at page 20, line 1, as follows.

--(Electrophotographic Apparatus Employing Intermediate Image-Transfer ~~Member~~ Element)--

C20

Please amend the paragraph beginning at page 20, line 3, as follows.

--Fig. 1 shows schematically an example of a color image forming apparatus (copying machine or laser beam printer) having an intermediate image-transfer ~~member~~ element 20, which is an elastic roller having a medium level of resistance, and employing an electrophotographic process.--

C21

Please amend the paragraph beginning at page 20, line 9, as follows.

--This image forming apparatus has a photosensitive drum 1 of a rotating drum type which is the first image-holding member, and is constituted of an electrophotographic sensitive member which is used in repetition. On the surface of this photosensitive drum, an electrostatic latent image is formed, and then a toner is allowed to be deposited onto the electrostatic latent image to form a toner image. Around photosensitive drum 1, there are disposed a primary electrifier 2 for electrically charging the surface of photosensitive drum 1 at a prescribed polarity and potential uniformly, and an imaging light projector not shown in the drawing for projecting imaging light 3 onto the electrified surface of photosensitive drum 1. There are also disposed developing devices: a first developing device 41 for

C22

depositing a magenta toner M, a second developing device 42 for depositing a cyan toner C, a third developing device 43 for depositing a yellow toner Y, and a fourth developing device 44 for depositing a black toner B. Further there are disposed a photosensitive member cleaner 14 for cleaning the surface of photosensitive drum 1 after transfer of the toner image onto an intermediate image-transfer ~~member~~ element 20.

C22 cont.

Please amend the paragraph beginning at page 21, line 6, as follows.

Intermediate image-transfer ~~member~~ element 20 is placed so as to be rotatable by contact with photosensitive drum 1, having core metal 21 in a pipe shape, and elastic layer 22 formed on the peripheral face of core metal 21. To core metal 21, bias power source 61 is connected which applies a primary transfer bias for transferring the toner image formed on photosensitive drum 1 onto intermediate image-transfer ~~member~~ element 20. By the side of intermediate image-transfer ~~member~~ element 20, transfer roller 25 is placed for transferring further the transferred toner image kept on intermediate image-transfer ~~medium~~ element 20 onto recording sheet 24, the transfer roller being held by an axis parallel with the rotation axis of intermediate image-transfer ~~member~~ element 20 to be brought into contact with the bottom face of intermediate image-transfer ~~member~~ element 20. Transfer member cleaner 35 is disposed for cleaning the remaining toner on the surface of intermediate image-transfer ~~member~~ element 20 after transfer of the toner image from intermediate image-transfer ~~member~~ element 20 onto recording sheet 24. To transfer roller 25, bias power source 29 is connected to apply a secondary transfer bias for transferring the toner image from intermediate image-transfer ~~member~~ element 20 to recording sheet 24.

C23

Please amend the paragraph beginning at page 22, line 23, as follows.

--As shown in Fig. 1, photosensitive drum 1 is driven to rotate clockwise at a prescribed peripheral speed (process speed). Intermediate image-transfer ~~member~~ element 20 is driven counterclockwise at the same peripheral speed as photosensitive drum 1. The rotation may be conducted at desired rates. Intermediate image-transfer ~~member~~ element 20 and photosensitive drum 1 may be driven at a desired relative speed with slight speed difference which does not adversely affect the image formation. Such slight difference of the rotation speed is considered to be the same speed.--

C24

Please amend the paragraph beginning at page 23, line 21, as follows.

--The magenta toner image of the first color thus formed and held on photosensitive drum 1 is subsequently transferred temporarily onto the peripheral face of intermediate image-transfer ~~member~~ element 20 during passage through the nip between photosensitive drum 1 and intermediate image-transfer ~~member~~ element 20 by action of the electric field generated by a primary transfer bias applied from bias power source 61.--

C25

Please amend the paragraph beginning at page 24, line 3, as follows.

--After transfer of the magenta toner image as the first color onto intermediate image-transfer ~~member~~ element 20, the surface of photosensitive drum 1 is cleaned by photosensitive member cleaner 14. Then, on the cleaned surface of photosensitive drum 1, a toner image of a second color (e.g., cyan toner image) is formed in the same manner as the first color toner image. This second color toner image is transferred in superposition onto the surface of intermediate image-transfer ~~member~~ element 20 holing the first color

C26

toner image. Further in the same manner, a third color toner image (e.g., yellow toner image), and the fourth color toner image (e.g., black toner image) are transferred in the same manner successively in superposition onto intermediate image-transfer ~~member~~ element 20 to form a synthetic color toner image corresponding to the intended color image.

C26 cont.

Please amend the paragraph beginning at page 24, line 20, as follows.

Thereafter, recording sheet 24 is delivered to the contact nip between intermediate image-transfer ~~member~~ element 20 and transfer roller 25 at prescribed timing. Then, transfer roller 25 is brought into contact with intermediate image-transfer ~~member~~ element 20, and thereto the secondary transfer bias is applied from bias power source 29 to transfer roller 20. Thereby, the synthesized color toner image formed in superposition on intermediate image-transfer ~~member~~ element 20 is transferred onto recording sheet 24 as the second image bearing member. After transfer of the toner image onto recording sheet 24, the remaining toner on intermediate image-transfer ~~member~~ element 20 is cleaned by intermediate image-transfer ~~member~~ element cleaner 35. Recording sheet 24 having received the transferred toner image is delivered to fixing device 15, and there the toner image is thermally fixed on recording sheet 24.

C27

Please amend the paragraph beginning at page 25, line 10, as follows.

During the successive transfer of the first to fourth color toner from photosensitive drum 1 to intermediate image-transfer ~~member~~ element 20, transfer roller 25

C28

C28 cont.

and intermediate image-transfer ~~member~~ element 35 may be kept apart from intermediate image-transfer ~~member~~ element 20 in operation of this image forming apparatus.

Please amend the paragraph beginning at page 25, line 16, as follows.

The color image forming apparatus employing such an intermediate image-transfer ~~member~~ element according to an electrophotographic method has various advantages in comparison with the conventional one, for example disclosed in Japanese Patent Application Laid-Open No. 63-301960, in which a recording sheet is fixed by sticking or adhesion onto a transfer drum and plural color images are repeatedly transferred in superposition from an image holding member, in the following points. The advantages are as explained below.

C29

Please amend the paragraph beginning at page 26, line 2, as follows.

Various kinds of recording sheets can be used, since the recording sheet is not worked or controlled (e.g., not held by a gripper, not sucked, or not curved) for transferring the toner image from intermediate image-transfer ~~member~~ element 20 onto recording sheet 24 as shown in Fig. 1. For example, various thicknesses of paper sheets ranging from thin paper sheets (basis weight: 40 g/m^2) to thick paper sheets (basis weight: 200 g/m^2) can be selected for use as recording sheet 24. Further, recording sheet 24 is not limited in breadth and length. Envelopes, post cards, label paper pieces, and the like can be used as recording sheets 24.

C30

Please amend the paragraph beginning at page 26, line 15, as follows.

Intermediate image-transfer ~~member~~ element 20 may be constructed from a materials of high rigidity. Thereby, dent formation, deformation, distortion, or the like by repeated use is prevented to keep the dimensional accuracy, and the frequency of exchange of the intermediate image-transfer ~~member~~ element 20 is decreased.

Please amend the paragraph beginning at page 26, line 21, as follows.

As described above, the image forming apparatus employing intermediate image-transfer ~~member~~ element 20 has many advantages.

Please amend the paragraph beginning at page 36, line 13, as follows.

In the present invention, the average inclination Δa was measured with a surface roughness tester SE-3300 (trade name, manufactured by Kosaka Kenkyusho K.K.) by calculation according to the definition of the average inclination described in Handling Manual of this tester: Chapter 8, "Definition of terminologies and parameters for surface roughness", Paragraphs 8-12. Specifically, the average inclination Δa of the roughness curve having a length "ℓ", as shown in Fig. 5, is calculated according to Equation 4 below.

(Equation 4)

~~$$\Delta a = \frac{1}{l}\int_0^l \left|\frac{dy}{dx}\right| dx = \left(\frac{h_1 + h_2 + h_3 + \ldots + h_n}{l}\right)$$~~

$$\Delta a = \frac{1}{\ell}\int_0^\ell \left|\frac{dy}{dx}\right| dx = \left(\frac{h_1 + h_2 + h_3 + \ldots + h_n}{\ell}\right)$$

Please amend the paragraph beginning at page 37, line 14, as follows.

C34

The image forming apparatus of the present invention employs intermediate image-transfer ~~member~~ element 20 or image-transferring belt 8, and an a-Si photosensitive member, and is characterized mainly in that the constitution around the contact portion between the photosensitive member and intermediate image-transfer ~~member~~ element 20 or image-transferring belt 8 and the contact state thereof are adjusted suitably. Therefore, results of the investigation on the constitution around the contact portion and the contact state will be described by reference to Examples 1-4.